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They are Ours.

We wait for peace, it will be sweet
When war's great strife is done,
And when from bloody battlefields
Our brave, returning, come.

Then prouder shall our banner wave,
And brighter be its stars,
As come our heroes home again,
As victors from the wars.

On rocking seas, where cradled lie
The misty, wave-kissed isles,
They'll plant the banner of the free,
And wake fair Freedom's smiles.

The sound of drums shall stir the air,
The fire-lipped guns awake,
To thunder in the tyrant's ears,
And speak for Freedom's sake.

And we, until this strife is done,
Will hold but sheaves of spears,
Nor ever shall our arm be stayed
By traitor doubts or fears.

Oh! Freedom then shall smile to see
Her widening empire's light
Break clear above those tropic isles,
With triumph of the right!

All praise to them, our boys in blue,
God keep them one and all;
For they are ours, where'er they fight,
And ours where'er they fall.

ELIZA A. OTIS.

Big Gun's Explosion.

Not one man in ten thousand has a clear idea of just what happens when a big cannon is fired. The physical manifestations are numerous. Even professors of chemistry and physics, says the Washington Press, are stumped when they want to differentiate all the gasses set loose and the peculiar effects they induce. The puff of whitish smoke, the flash of fire the dim image of the flying projectile, the roar and the recoil are all familiar, but back of these is a complex mass of phenomena most bewildering to the mind of any but an artillery expert.

First, the cubes, disks, hexagons, or irregular lumps of powder are chemically transformed into a powerful expanding gas the instant firing takes place. Then there are innumerable by-products that even chemists do not understand.

The explosion of gun-powder is divided into three distinct stages, called the ignition, inflammation, and combustion. The ignition is the setting on fire of the first grain, while the inflammation is the spreading of the flame over the surface of the powder from the point of ignition. Combustion is the burning up of each grain. The value of gun powder is due to the fact that when subjected to sufficient heat it becomes a gas which expands with frightful rapidity. The so-called explosion that takes place when a match is touched to gun-powder is merely a chemical change, during which there is a sudden evolution of gasses from the original solid.

It has been calculated that ordinary gun powder on exploding expands about 9,000 times or fills a space this much larger as a gas than when in a solid form. When this chemical change takes place in a closed vessel the expansion may be made to do a work like that of forcing a projectile along the bore of the great gun or test tube in the line of least resistance.

The hardest work a gunner is called upon to do is to stand the tremendous shock. The forces exerted by these gasses in expanding seems to radiate in all directions from the cannon, as ripples are caused by dropping a stone in a pool of still water. As a matter of fact, it has been discovered that these lines of forces are exceedingly complicated affairs, and play very queer pranks about the cannon. As a result few people know just which is the safest or most dangerous position for a gunner to take beside his gun. In the case of the great 13-inch guns on our monitors, a position back of the gun is much easier than one nearer the muzzle.

He Failed to Make Gold.

E. C. Brice, who claimed to be able to make gold, has gone, and the 20,000 building and plant he erected at Thirty-ninth street and Lowe avenue stand idle. He is reported to be suffering from nervous prostration. The plant is said to have been a commercial failure, although P. G. Lamoreaux, who was appointed temporary manager, says the theory is all right. He asserts that the books show where every dollar received

by Brice was expended, even to 1893; he received for stock two weeks ago. It was the dream of his life to make the plant a success. Pressed on all sides by stockholders when the plant was not turning out gold according to expectations, he held them off by his iron will, at all times claiming to be on the verge of success until his money was exhausted. A little over a week ago he acknowledged his system was a failure and asked Mr. Lamoreaux to take hold. Mr. Brice flung himself on the couch in his office and wept like a child.

The shareholders numbered about 300. Many of them were poor people who suffered privations to buy stock. Shares which sold for 10¢, their face value, in October rapidly increased in value. By November they were quoted at 50¢ and 75¢. During December some were sold for 200¢ and 250¢. Shareholders built air castles and looked over their back yard fences at the stone mansions they would buy. Now they are having a hard time to pay rent.—Chicago Record.

A Paying Profession.

"There is no profession that holds out such tempting allurements to the youth of to-day as that of the metallurgist and mining expert," said Mr. D. G. Downs of San Francisco. "Last year, of the class of about a dozen who were graduated at the school of mines in the University of California, at least ten have found excellent situations, with big salaries. Our universities cannot turn out expert engineers fast enough for the demand. When I was in London last summer an English scientist told me that there would be a strong demand for years for competent men, and added that England kept the United States drained of its best mining talent. They are wanted in South Africa, in Australia, New Zealand; in fact, all over the world, and they can get higher pay than doctors, lawyers, or any other class of professional men. Any young man who is ambitious for a career that will lead to fortune, if not to fame, and perhaps to both, if he be industrious and steady, will make no mistake by qualifying himself in the direction of mineralogy."—Denver Daily Mining Record.

The question what to do with the Spanish prisoners is beginning to trouble the government. It now has several thousands of them, and is likely in the course of a few days to have many thousands more. How to dispose of all these foreigners is quite a problem. The Chicago Tribune which has investigated the subject concludes that the best plan would be to put the prisoners to work. "Most of them," it remarks, "will be glad to lie down on our hands and be fed during the remainder of the war. Certainly we cannot ship them home to Spain on parole. If it took forty-five transports to carry 17,000 of our troops to Santiago it would require the whole American merchant marine to carry these prisoners to Spain. Neither can they be trusted on parole and be left to run loose in the Cuban bush. It will evidently be necessary to hold them fast and feed them. No doubt a share of the great cargoes of fresh beef just ordered in Chicago for Cuban consumption will have to go to that use. But why not fool them and put them to work raising their own beans and potatoes and tobacco? All Spanish soldiers have been taught that the Americans want to catch them in order to make slaves out of them, and this mild fulfillment of their fears might be a merciful way of breaking the news gently to them and undeceiving them by degrees. A turn at the hoe and shovel would also cure that baughty feeling, to say nothing of lightening our own formidable burden in taking boarders on so extensive a scale."—San Diego Union.

The periodical, or seventeen year cicada, commonly but erroneously called the seventeen-year locust, a term which the scientists of the agricultural department say should only be applied to grasshoppers, is due to reappear in the United States this summer. During its adolescent period its long subterranean life of seventeen years is passed without its existence being suspected or indicated by

any superficial sign. At the end of the period every generation, though numbering millions, attains maturity at almost the same moment. The seventeen-year brood will appear this year in the vicinity of New York City, Philadelphia, Harrisburg, Pittsburg, Erie, Washington, in Southwest Virginia, western North Carolina, central Georgia, thickly in Mississippi, northeastern Louisiana, thickly in Arkansas, western Tennessee and Kentucky, southern Illinois, western Missouri and along the Mississippi river in Illinois and Missouri, northeastern Wisconsin, and are suspected to be in southwestern Michigan. The cicada inflicts incalculable damage to farmers by depositing their eggs in the twigs and branches of orchards, causing the infected parts to wither and die.

New Milling Process.

From Salido, Colorado, comes the report that there are now being made in that city a series of experiments and demonstrations of a new process for treating ores. If the tests made can be carried out on a large scale, the industry of mining low grade ores will be speedily revolutionized. The process was discovered and patented by A. G. Stephen, of Colorado Springs, and has already attracted no little attention from prominent mine and mill men. There is as yet no mill in the state using the process, but it is expected that one will soon be located in the Whitebon-Turret district.

The process is similar to the cyanide, but possesses many vastly superior points. The process is known as "The Non-Roasting Metal Extraction Process," and is all that its name signifies. All the metals are extracted by the ore solution, and the ore is never roasted, simply crushed. The pulp is put into vats, and the most refractory ore yet tested requires only an hour and fifteen minutes to extract all metal from the pulp. Some ore requires only thirty minutes, while the average is about 45 minutes. Not only gold is thus taken from the ore, but silver, antimony, copper and sulphur. The presence of iron or copper does not hinder the extraction of gold, as is the case with the cyanide process, which will not successfully treat ore that contains more than three or four per cent of iron or copper. Another point is that cyanide frequently requires twelve to fifteen hours to treat ores that by this process is reduced in one hour. The chemical used is six times stronger than cyanide, and costs to manufacture, even in small quantities, only two cents a gallon. From fifty to eighty cents' worth treats a ton of ore. The owners of the patent guarantee to save 97 per cent of the values contained at a cost of about 2.50¢ to 3¢ per ton. At that rate, with a mill advantageously located, 8¢ ore can be mined at a good profit, while at present the cheapest process known requires that much for treatment.

The chemical has no effect on lead or zinc. Wooden vats coated with lead paint are used, another element of cheapness. Tests further show that ores hardest to treat by the cyanide process are easiest treated by the Stephen's process. In the Salido gold belt the ores abound in iron, copper and lime, so that the district is peculiarly adapted to this mode of treatment. Mr. Thomas Elder, of that city, who has extensive mining interests on Camera mountain, has charge of the matter of locating a mill in the district and is pushing things as rapidly as possible. The district presents a splendid field as there are now a great many properties of ore that runs from 10¢ to 20¢ per ton. Under present conditions ore from the district cannot be shipped and treated for less than about 20¢ per ton, so it will readily be seen that the success of this new process means much to the district.—Western Mining World.

It begins to look as though the war will have to be extended indefinitely in order to use up the fund being collected by the war revenue bill. The income that will result from the provisions of this law is as yet inconceivable but something of its immensity can be appreciated by a moment's reflection and its application to the business transacted

here in Phenix, a very small place when compared with the rest of the country. So far over 2000¢ have been turned into the government from Phenix from the sale of stamps. Of course this showing is not indicative of the amount of revenue required for the first ten days business as many have purchased a supply of stamps ahead. Inquiry at the banks reveal that from the number of checks and drafts and other commercial papers handled daily the stamps on the same will amount to from 10¢ to 20¢ daily, say 45¢ for the Phenix banks. To this sum remains to be added the revenue from the recorder's office, a fee of 50 cents for each 500¢ of valuation being collected before the filing of each instrument. Then comes the notaries public, and Phenix is full of them. They are required to put a ten cent stamp on every affidavit and as nearly everything pertaining to modern business methods requires a notary's seal this source of revenue is no small item. Every money order drawn at the postoffice requires a stamp and every telegram sent calls for a one cent stamp. To sum it all up 100¢ a day is not an exaggerated estimate of the revenue Phenix is turning into the government to carry on the war. Assuming that the population of Phenix is 10,000 and the population of Arizona is 75,000 it makes a daily sum of 750¢ turned into the treasury by poor despised Arizona that is said to be unknown in the east. And this amount is given as willingly by the patriots at home as were the lives of the brave rough riders who fell at Santiago.—Phenix Herald.

"Arizona Blue."

In the recent issue of Popular Astronomy, Dr. T. J. See of Lowell Observatory at Flagstaff, A. T., reviewed the atmospheres of various counties and of various sections of the United States from the astronomer's standpoint. According to Dr. See the section in which Flagstaff is located possesses the astronomer's ideal atmosphere. The work which that observatory has already accomplished demonstrates that his claim is not exaggerated. Dr. See has given this atmosphere at Flagstaff the specific name of "Arizona blue." It extends, he says, from the horizon to the zenith unbroken by a single cloud. "So blue is this sky," he adds, "that we notice no appreciable whitening as we approach the sun or the horizon, which is free from dust and seldom obscured by a cloud, and, of course, never by haze or fog. I have never seen, in any part of the world, a more impressive scene than the Arizona sky when viewed through the beautiful pine forest which surrounds the observatory. The moon stands out sharply in the most beautiful silver light, and we can see with the naked eye as much detail of her mountains as one commonly sees elsewhere with an ordinary opera glass." This superb atmosphere, so eloquently described by Dr. See, is attributed by him to a condition of meteorological equilibrium produced by local influences and freedom from disturbing currents. With such an atmosphere there is nothing to be wondered at when Flagstaff Observatory outranks all other observatories in the country, for the time it has been in existence, in the field of astronomical discovery.—San Francisco Chronicle.

A Kentucky man reading about the trouble the government was experiencing in collecting a fleet of rams for the navy, wrote to Washington, saying he had one at the government's disposal, although this species of warfare was new to him, as he never before heard of sheep being used in battle. He also expressed doubt as to the advisability of his ram as a sea fighter, but on land he guaranteed the animal to boost a Spaniard from Havana to kingdom come.

Probably the largest nugget or mass of silver ever mined was a piece taken from the Smuggler mine, Aspen, Colorado, in 1894. The nugget in question formed part of a consignment of 15,031 pounds of ore, which with silver at 53 cents or thereabouts, netted, free and clear of expenses, very close to 82,000¢.—Nogales Oasis.

One cannot contemplate the distinctions in army life which elevates the officer to the highest pedestal of social favoritism and degrades the common soldier to the level of the tramp, without feeling that somehow the military arm of the government is destructive to the fundamental principles of equality upon which the republic was founded. It is said these distinctions are necessary to preserve discipline. A viler libel was never uttered. If it is necessary to degrade and humiliate the patriotic American citizen to compel him to subscribe to the rules and restrictions of army life, then there should be no recognition in civil life of the principle of equality among men. If the man who offers up his life in the service of his country and assumes the burdens and responsibilities of the common soldier, must suffer social ostracism and be made the victim of snobbery as the price of his sacrifice, then the republic is a failure as the means to an end in the development of human character.—Western Mining World.

What most profoundly saddens the habitus of society, in the narrow meaning of that word, is not the exhibition of any monstrous audacities in sin, but the sordid average of petty faults, the everyday littleness and misunderstandings, the dreary mass of cowardly concessions, and of the vulgar compromises apparently inseparable from the exercise of social power. Not only do these things sadden spirits of exceptional quality, but they provoke passionate protest, and foster also the haunting belief that there is somewhere an ampler horizon and a freer air, wherein the soul can spread her wings, and individuality can assert itself.—Sentinel.

An exchange says a minister in a town not a thousand miles away, on a recent Sunday, surprised his congregation by reading the following announcement from the pulpit: "The regular session of the Donkey Club will be held as usual at the close of this service. Members will line up just outside the church door; make remarks and stare at the ladies who pass, as is their custom. Any member known to escort a young lady to church like a man, and sit with her like a gentleman, will be promptly expelled from membership." The application was to the point, and the effect was marvelous.

Knoxville has a curio that is puzzling the medical skill of the south. Three months ago Margaret, the 12 year old daughter of Calvin Allen, complained of her neck "pulling." But little attention was paid to her at the time. Her arms grew hard and now her entire body, with the exception of her jaw, is as hard as rubber. She has the use of all her faculties and works her joints with ease. She has a good appetite and when pinched or stabbed with a sharp instrument feels it keenly. It does not appear to be ossification. The girl is decreasing in weight.

Ex Governor Hogg of Texas, delivered an oration on dress reform on the 4th as well as on patriotism; his daughter and four other young ladies were on the rostrum dressed in simple calico dresses costing not over forty cents each. The governor thinks patriotism and economy run close together in such times as these and has no use for the Paris costumer and milliner.—Ex.

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